

IN THE CLAIMS:

Claims 1-20 (Canceled)

21. (Currently Amended) A semiconductor device, comprising:

a ~~co-doped germanium~~ buried layer doped located over a doped substrate, said buried layer doped throughout with germanium and a p-type dopant;

a doped epitaxial layer located over ~~the co-doped germanium~~ said buried layer.

22. (Canceled)

23. (Currently Amended) The semiconductor device as recited in Claim 21 ~~22~~ wherein ~~the~~ said p-type dopant is boron.

24. (Currently Amended) The semiconductor device as recited in Claim 21 wherein a dopant concentration of ~~the co-doped germanium~~ said buried layer ranges from about $1\text{E}15$ atoms/cm³ to about $1\text{E}20$ atoms/cm³, a dopant concentration of the doped substrate ranges from about $1\text{E}14$ atoms/cm³ to about $1\text{E}15$ atoms/cm³, and a dopant concentration of the doped epitaxial layer ranges from about $1\text{E}14$ atoms/cm³ to about $1\text{E}15$ atoms/cm³.

25. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the co-doped germanium~~ said buried layer has a germanium concentration ranging from about

2E20 atoms/cm³ to about 7E20 atoms/cm³.

26. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the co-doped germanium~~ said buried layer has a thickness ranging from about 1 μ m to about 10 μ m.

27. (Currently Amended) The semiconductor device as recited in Claim 21 wherein ~~the said doped substrate, co-doped germanium~~ said buried layer, and ~~the doped~~ said epitaxial layer collectively have a thickness ranging from about 2 μ m to about 20 μ m.

Claims 28-36 (Canceled)

37. (Currently Amended) An integrated circuit, comprising:
a ~~co-doped germanium~~ buried layer located over a doped substrate, said buried layer doped throughout with germanium and a p-type dopant;
a doped epitaxial layer located over ~~the co-doped germanium~~ said buried layer;
transistors located over ~~the~~ said doped epitaxial layer; and
interconnects located within interlevel dielectric layers located over ~~the~~ said transistors,
which connect ~~the~~ said transistors to form an operational integrated circuit.

38. (Currently Amended) The integrated circuit as recited in Claim 37 wherein the ~~co-doped germanium buried layer further includes~~ said p-type dopant is boron.

39. (Currently Amended) The integrated circuit as recited in Claim 37 wherein ~~the~~
~~co-doped-germanium~~ said buried layer has a germanium concentration ranging from about 2×10^{20}
atoms/cm³ to about 7×10^{20} atoms/cm³.

40. (Original) The integrated circuit as recited in Claim 37 further including
additional active and passive devices.